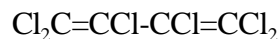


HEXACHLOROBUTADIENE

Hexachlorobutadiene is a federal hazardous air pollutant and was identified as a toxic air contaminant in April 1993 under AB 2728.

CAS Registry Number: 87-68-3



Molecular Formula: C_4Cl_6

Hexachlorobutadiene is a clear, colorless liquid with a faint turpentine odor. It is soluble in alcohol and ether and slightly soluble in water. Hexachlorobutadiene is also nonflammable (Sax, 1987).

Physical Properties of Hexachlorobutadiene

Synonyms: perchlorobutadiene; hexachloro-1,3-butadiene; 1,3-hexachlorobutadiene; 1,1,2,3,4,4-hexachloro-1,3-butadiene; HCBd

Molecular Weight:	260.76
Boiling Point:	215 °C
Melting Point:	-21 °C
Vapor Density:	8.99 (air = 1)
Density/Specific Gravity:	1.5542 at 20/4 °C (water = 1)
Vapor Pressure:	0.15 mm Hg at 20 °C
Log Octanol/Water Partition Coefficient:	4.90
Water Solubility:	2.55 mg/l at 20 °C
Henry's Law Constant:	1.03×10^{-2} atm-m ³ /mole
Conversion Factor:	1 ppm = 10.7 mg/m ³

(Howard, 1990; HSDB, 1991; Sax, 1989; U.S. EPA, 1994a)

SOURCES AND EMISSIONS

A. Sources

Hexachlorobutadiene is used as a solvent for elastomers, a heat-transfer liquid, a transformer and hydraulic fluid, and as a wash liquor for removing hydrocarbons. Sources of hexachlorobutadiene are from its use, from refuse combustion, and from fly ash (HSDB, 1991).

B. Emissions

No emissions of hexachlorobutadiene from stationary sources in California were reported, based on data obtained from the Air Toxics “Hot Spots” Program (AB 2588) (ARB, 1997b).

C. Natural Occurrence

Hexachlorobutadiene is not known to occur as a natural product (Howard, 1990).

AMBIENT CONCENTRATIONS

No Air Resources Board data exist for ambient measurements of hexachlorobutadiene.

INDOOR SOURCES AND CONCENTRATIONS

No information about the indoor sources and concentrations of hexachlorobutadiene was found in the readily-available literature.

ATMOSPHERIC PERSISTENCE

Hexachlorobutadiene is expected to exist in the gas phase in the atmosphere. It is expected to react with hydroxyl (OH) radicals, NO₃ radicals, and ozone, with the OH radical reaction probably dominating as a tropospheric loss process. However, no reaction rate data are presently available (Atkinson, 1995).

AB 2588 RISK ASSESSMENT INFORMATION

Hexachlorobutadiene emissions are not reported from stationary sources in California under the AB 2588 program. It is also not listed in the California Air Pollution Control Officers Association Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines as having health values (cancer or non-cancer) for use in risk assessments (CAPCOA, 1993).

HEALTH EFFECTS

Probable routes of human exposure to hexachlorobutadiene are inhalation, ingestion, and dermal contact (Howard, 1990).

Non-Cancer: Adverse effects on the kidney and respiratory system from inhalation exposure and effects on the kidney from chronic oral exposure to hexachlorobutadiene have been demonstrated in animal studies. The United States Environmental Protection Agency

(U.S. EPA) has not established a Reference Concentration (RfC) for hexachlorobutadiene and

is currently reviewing the oral Reference Dose (RfD) (U.S. EPA, 1994a).

No information is available on adverse reproductive or developmental effects of hexachlorobutadiene in humans. Reduced fetal body weights from maternal exposure to hexachlorobutadiene have been reported in animal inhalation studies (U.S. EPA, 1994a).

Cancer: No information is available on the carcinogenic effects of inhalation exposure to hexachlorobutadiene in humans. Kidney tumors were observed in rats orally exposed to hexachlorobutadiene. The U.S. EPA has classified hexachlorobutadiene in Group C: Possible human carcinogen with an inhalation unit risk estimate of 2.2×10^{-5} (microgram per cubic meter)⁻¹. The U.S. EPA estimates that if a person were to breathe air containing hexachlorobutadiene at 0.05 micrograms per cubic meter over an entire lifetime, that person would theoretically have no more than a 1 in 1 million increased chance of developing cancer (U.S. EPA, 1994a). The International Agency for Research on Cancer has classified hexachlorobutadiene in Group 3: The agent is not classifiable as to its carcinogenicity to humans (IARC, 1987a).

